APPENDIX B

OBTAINABLE AND ADAPTABLE WATER CONSERVATION EDUCATION MATERIALS

PIPE LINES

Metropolitan Department of Water & Sewerage Services

SPRING 1987

The miracle of Mother Nature is visible all around us as plants prepair for another season of growth in the bright sunshine of Summer in Nashville. People are also getting ready for the outdoor activities of Summer. Boats are being cleaned and polished, fishing gear is being oiled and readied for use, gardens are being nutured, shrubs are being planted... the list goes on and on. Summer is a time for recreation and fun but it is also a time when we all need to remember not to waste our valuable drinking water.

Past Summers have been unusually dry and we are entering this Summer with rainfall still below average. Because of this and the many questions asked in the past Summers, we are dedicating this entire newsletter to helpful hints and reminders in the use of WATER... OUR MOST VALUABLE RESOURCE.

DON'T WATER THE GUTTER: Position the sprinkler so water lands on the lawn.... not the driveway or sidewalk. Avoid watering on windy days and you'll avoid having most of the water go where you don't want it or evaporate before the soil gets it. Let water sink in slowly. Lots of water applied fast mostly runs off. This also helps establish deeper roots. A kitchen timer is a handy reminder for turning off sprinklers.

LANDSCAPE WITH DROUGH-RESISTANT TREES AND PLANTS: Many beautiful trees and plants thrive with far less water than other species. Get to know your plant's needs.

PUT A LAYER OF MULCH AROUND TREES AND PLANTS: Mulch will slow evaporation of moisture and discourage moisture robbing weeds.

USE A BROOM, NOT A HOSE, TO CLEAN DRIVEWAYS AND SIDEWALKS

DON'T RUN THE HOSE WHILE WASHING YOUR CAR: Clean the car with a pail of soapy water. Use the hose just to rinse it off.

TELL YOUR CHILDREN NOT TO PLAY WITH THE HOSE AND SPRINKLERS. Remember a garden hose can pour out 600 gallons of water in just a short time.

WATERING LANDSCAPE PLANTS

What to water	Comments	How to Water When Water is Necessary
Established lawns: Healthy lawns in Davidson County generally do not need extra water. Cool season grasses such as fescue and bluegrass enter a period of dormancy during the hot days of summer. Healthy grass may turn brown during periods of moderate drought without damage.	A clipping height of 2½ to 3 inches for cool season grasses and 1½ to 2 inches for bermudagrass will encourage deeper root development. Over fertilization increases water demand and may encourage disease problems.	Watering should begin only after two weeks without rainfall. Apply enough water at each application (usually once per week) to soak the ground to a depth of 6-8 inches. Water mid-morning if possible. Late evening watering may encourage fungus.

Meeting the needs of tomorrow...Today!

What to water	Comments	How to Water When Water is Necessary
Newly planted trees and shrubs (first year).	A two inch layer of mulch helps to hold moisture in the root zone. Over watering or watering too frequently will likely result in root decay. Some plants, such as yew, are extremely sensitive to over watering or poor soil drainage. Check soil drainage before planting.	Thoroughly soak root zone with a slow running hose or soaker hose once every 7-10 days in the absence of rainfall.
Water thoroughly immediatley after transplanting.		Soil should go into the winter moist.
		Large transplanted trees (three inch trunk diameter or more) may require supplemental watering the second yr.
Established Trees and Shrubs: The root zone generally extends just past the "drip line" of the branches with the majority of the feeder roots located around the perimeter. Most healthy mature trees and shrubs can withstand moderate drought (three weeks without significant rainfall) without harm.		Thoroughly soak root zone to a depth of 8 to 10 inches with a single application every two weeks. Certain shallow rooted shrubs such as azaleas may require more frequent watering.
New transplants (flowers, vegetable plants, etc.) soak the soil around each plant at transplanting.		Water new transplants every 2 to 3 days in the morning for one week or until leaves do not wilt during the day. Thereafter, water to a depth of 6 to 8 inches once per week in the absence of rainfall. More frequent watering may promote crown rot on certain plants.
A two inch layer of mulch helps conserve moisture, prevents weed seed germination and may reduce disease problems.		
Vegetable Gardens: Individual vegetables have critical growth periods when water is essential. With most heavy yielding plants such as tomato, this period is usually from flowering through fruit-fill.		For maximum yield the root zone should remain moist (not wet or water-logged especially during the critical growth period. Generally, one to two applications per week.
Soaker hoses or drip irrigation provide more efficient use of water and help reduce Foliar disease problems.		

More complete information concerning care of landscaping plants is available at the Davidson County Agricultural Extension Office. 701 Jefferson Street, Nashville, Tennessee 37208 - Phone: 259-6467.

Information compiled by the Department of Water & Sewerage Services and the Davidson County Agricultural Extension Office

Presented as a public service of the Metropolitan Government of Nashville and Davidson County
Richard Fulton, Mayor

Metropolitan Department of Water & Sewerage Services
1700 Third Avenue North ● Nashville, Tennessee 37208

William B. Whitson, Associate Director

TIPS FOR PLUMBING PROTECTION FROM WINTER FREEZE

★ Prepare now before you forget!

★ **INSULATE PIPES** ★ Insulating pipes . . . especially those adjacent to outside walls, under the house, or in the attic . . . is the most effective method for avoiding frozen water pipes. Inexpensive insulation for water pipes can be found in most hardware stores or department stores with a hardware section.

★ **ATTIC ABOVE SHOWERS** ★ The attic area above showers is often left open in construction of the house. If yours is, block it off with material that can be secured to eliminate cold air penetration and add insulation.

★ **CRAWL SPACE VENTS** ★ These should be closed from mid-November to around the middle of March to keep out cold wind. Don't forget to open them in the Spring, the circulation of air in the Summer helps control moisture.

ACT IMMEDIATELY WHEN THE WEATHERMAN WARNS OF BITTER COLD!!!

When temperatures drop below 20° it's almost too late to take the precautions already listed. But, here are some steps you can take . . .

★ **VANITY DOORS** ★ Open the doors beneath your bathroom sink and kitchen sink to allow warmer air to circulate around the water pipes.

★ **GARAGE & UTILITY AREAS** ★ Leave doors closed as much as possible. Since these areas are often poorly insulated, it may be necessary to add supplemental heat such as:
Electrical Heat Tape or a Light Bulb
If you select the heat tape be sure to read and follow the manufacture's instructions for use. **DO NOT USE OPEN FLAMES! ! !**

★ **FAUCETS** ★ When temperatures near zero, you may want to let the water trickle. The extra cost of water is much less than a plumbing repair bill.

★ **OUTSIDE FAUCETS** ★ Be sure the garden hose is disconnected.

IF LINES FREEZE: use a hair dryer or warm towels to thaw. **NEVER** risk a house fire by using a torch. In addition to the risk of a fire, using a torch can cause the water in the pipe to turn into steam, which can build enough pressure to split the pipe!

★ **MASTER VALVE** ★ Locate the cutoff valve for your house so that in the event of a burst line you can stop the flow of water. The cutoff valve is usually the first valve near where the water line comes into your house.

If a pipe in your home freezes and bursts, you must call a plumber. If you see water in the street or a yard, please contact **WATER & SEWERAGE SERVICE AT 259-6401.**

Presented as a public service of the
Metropolitan Government of Nashville and Davidson County
Richard H. Fulton, Mayor

Metropolitan Department of Water & Sewerage Services
1700 Third Avenue North ● Nashville, Tennessee 37208

Bill Insert

HELPFUL HINTS FOR CONSERVING WATER

CHANGE TO GOOD WATER USE HABITS. Most water users are unaware of the amount of water they use in an average day of ordinary living. Of the average 100 gallons per person per day used in a community, about 60 gallons involve home use. Most of this home use is in the bathroom — 30 gallons flushing the toilet and 30 gallons for bathing.

	NORMAL USE	CONSERVATION USE
Shower	water running 25 gal. (4 minutes)	wet down, soap up, rinse - 4 gal.
Toothbrushing	tap running 10 gal.	wet brush, rinse briefly - 0.5 gal.
Tub Bath	full 36 gal.	minimum water level 10-12 gal.
Shaving	tap running 20 gal.	fill basin 1 gal.
Dishwashing	tap running 30 gal.	wash & rinse in sink or pan - 5 gal.
Automatic Dishwasher	full cycle 16 gal.	short cycle 7 gal.

CONSERVATION MEASURES

Conservation Measures For Residential Users:

(1) Locate and repair all leaks in faucets, toilets, and water-using appliances.

(2) Adjust all water-using appliances to use the minimum amount of water in order to achieve the appliance's purpose.

(3) Use automatic washing machines and dishwashers only with full loads. Preferably, wash dishes by hand.

(4) Take shorter showers and shallower baths.

(5) Turn off faucets while brushing teeth, etc.

(6) Turn off shower while soaping up.

(7) Set temperature settings of hot water at least 10 degrees lower to discourage lengthy shower-taking.

(8) Where plumbing fixtures can accommodate them, install flow-restricting or other water-saving devices.

(9) Reduce the number of toilet flushes per day. Each flush uses about 5 gallons. Reduce water used per flush by installing toilet tank displacement inserts.

(10) Use sink and tub stoppers to avoid wasting water.

(11) Keep a bottle of chilled water in the refrigerator.

Conservation Measures For Non-Residential Users:

(1) Identify and repair all leaky fixtures and water-using equipment. Give special attention to equipment connected directly to water lines, such as processing machines, steam-using machines, washing machines, water-cooled air conditioners, and furnaces.

(2) Assure that valves and solenoids that control water flows are shut off completely when the water-using cycle is not engaged.

(3) Adjust water-using equipment to use the minimum amount of water required to achieve its stated purpose.

(4) Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.

Source: Kentucky Water Shortage Response Plan, 1986

(4) Shorten rinse cycles for laundry machines as much as possible; implement lower water levels wherever possible.

(5) For processing, cooling and other uses where possible, either reuse water or use water from sources that would not adversely affect public water supplies.

(6) Advise employees, students, patients, customers, and other users not to flush toilets after every use. Install toilet tank displacement inserts; place flow restrictors in shower heads and faucets; close down automatic flushes overnight.

(7) Install automatic flushing valves and/or adjust to cycle at longer intervals.

(8) Place water-saving posters and literature where employees, students, patients, customers, etc. will have access to them.

(9) Check meters on a frequent basis to determine consumption patterns.

(10) Review usage patterns to see where other savings can be made.

Direct Hospitals and Health Care Facilities to Adopt the Following Conservation Measures:

(1) Reduce laundry usage or services by changing bed linen, etc., only where necessary to preserve the health of patients or residents.

(2) Use disposable food service items.

(3) Eliminate, postpone, or reduce, as may be appropriate, elective surgical procedures during the period of the emergency.

WATER-SAVING DEVICES

Toilet Devices (Retrofit)

Note: Do not use a brick or other item which may crumble, causing damages and leaks.

- Water Bag*
- Plastic Bottle*
- Plastic Dam*
- Dual Flush Mechanism*
- Weighted Tank Ball
- Flap-Type Flush Valve*
- Improved Float Assembly*

Toilets (new installations)

- Shallow Trap Toilet
- Pressurized Toilet Tank
- Compressed Air Toilet
- Vacuum Toilet

Shower Devices

- Shower Flow Restrictor*
- Shower Shut-off or Control Valve*
- Flow Control Showerhead
- Automatic Shut-Off Valve
- Thermostatic Mixing Valve
- Pressure-Balancing Mixing Valve
- Air-Assisted Shower

Faucet Devices

- Flow Control Faucet
- Faucet Flow Control Valve
- Faucet Flow Restrictor
- Faucet Aerator*
- Spray Tap
- Thermostatic Mixing Valve
- Automatic Shut-Off Valve

Water-Saving Appliances

- Front Loading Washer
- Variable Water Level Control
- Suds-Saver Feature
- Cycle-Adjusted Dishwasher

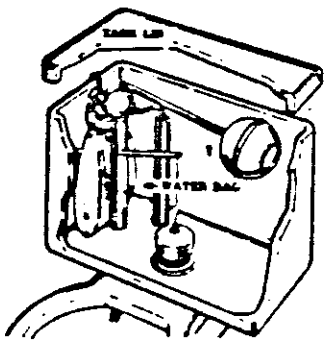
Miscellaneous Devices

- Hot Water Pipe Insulation
- Pressure-Reducing Valve

*See Pictures (following)

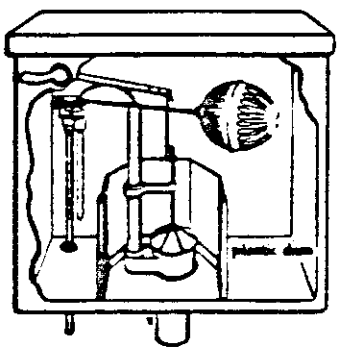
WATER-SAVING DEVICES FOR TOILETS

WATER BAG



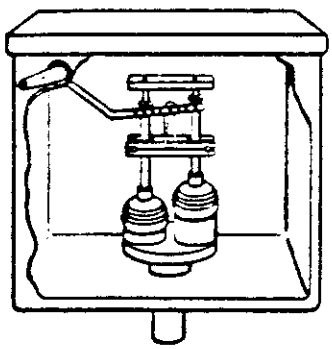
PLASTIC BOTTLE

PLASTIC DAM



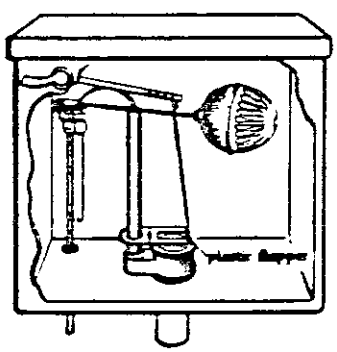
A small plastic dam installed around the flush valve reduces the amount of water flowing from the flush tank into the toilet bowl without reducing the force with which it flows.

DUAL FLUSH MECHANISM



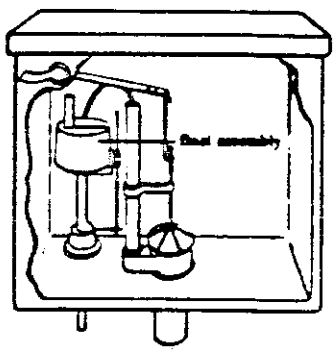
A dual flush mechanism permits a full flush to remove solids if the try handle is moved in one direction, and a partial flush for liquid wastes if moved in the other direction.

FLAP-TYPE FLUSH VALVE



A "flap" type of flush valve replaces the flush ball and its system of wires and guides. Bent or binding guide wires are a major cause of flush ball leaks.

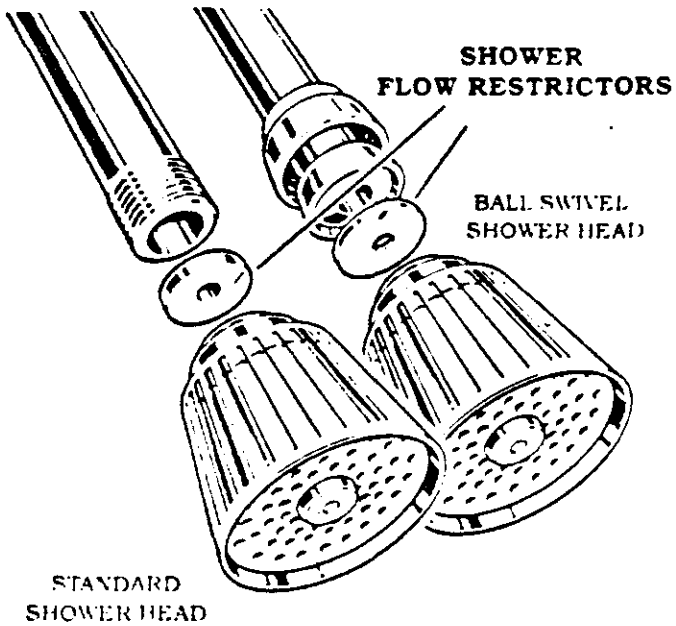
IMPROVED FLOAT ASSEMBLY



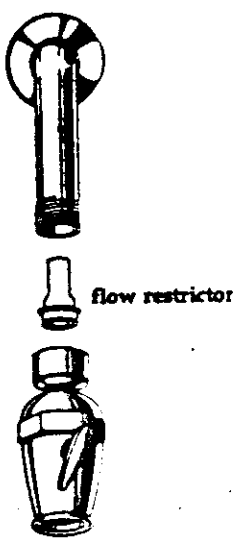
An improved float valve refills more rapidly and signals the presence of a leak at the flush ball.

SHOWER AND FAUCET WATER CONSERVATION DEVICES

SHOWER FLOW RESTRICTOR (example A)



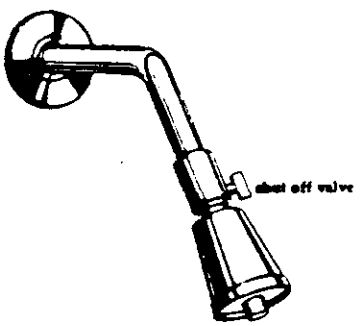
SHOWER FLOW RESTRICTOR (example B)



SHOWER CONTROL VALVE

- Chrome-plated brass shower control valve that cuts water useage by 60%.
- Fits all shower heads, including hand held massaging units.

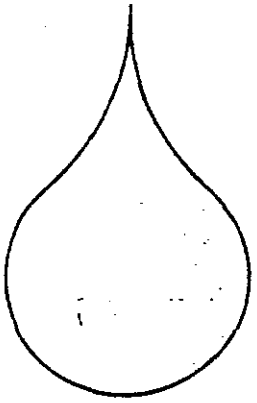
SHOWER SHUT-OFF VALVE



FAUCET AERATOR

- Chrome-plated brass aerator with stainless steel screen.
- Flow rate will not exceed 2.75 gpm at 80 psi.
- Saves up to 60% in energy and water.

Source: TVA, 1986



WATER CONSERVATION FACTSHEET NO.1

WHAT IS WATER CONSERVATION?

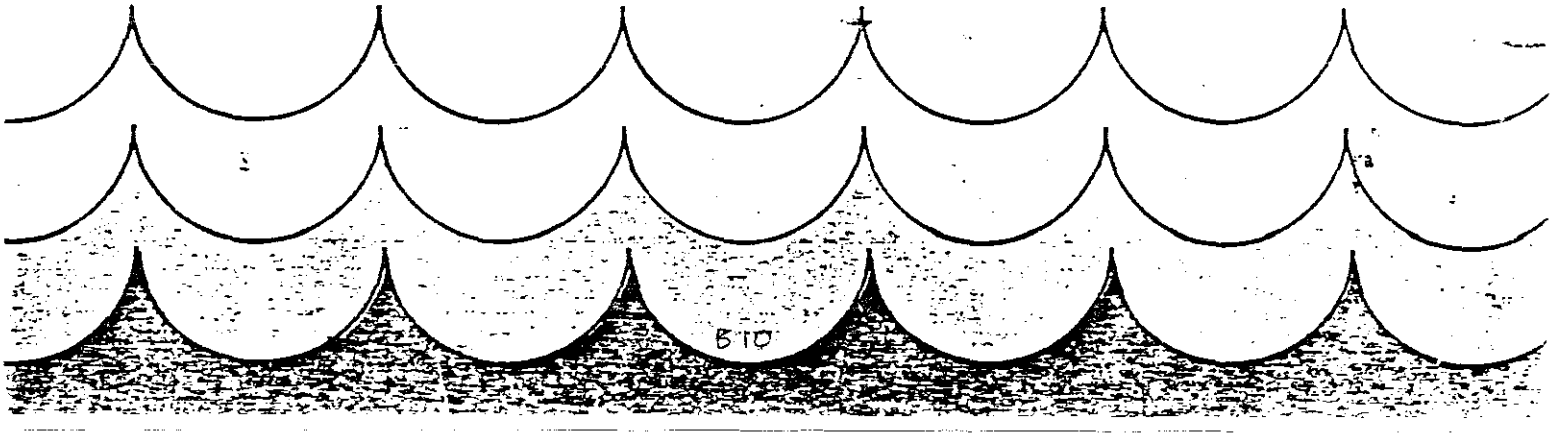
Water conservation is the wisest and best use of available water resources—it is the act of protecting water from loss or contamination so it can be used for desired purposes. With both water usage and costs for treatment and distribution increasing, water is not always in the right place at the right time. Water conservation is a practical and necessary alternative to expansion of treatment and distribution systems for meeting our water needs. The increased demand placed on the available water has reached a point where we have to realize that our water resources are limited. The time has come for all of us to treat this renewable but limited resource with care. A clean and abundant supply of good quality water is a key resource to support public health and economic growth and development in the Valley and throughout our country.

WHAT ARE SOME REASONS FOR SAVING WATER?

ECONOMY—The cost of treating and delivering safe drinking water to your home is constantly increasing. Saving water will save money for you and your community. With less water usage, fewer chemicals are needed for purification, operating costs are lower for both water and sewage treatment plants, and expansion of these plants to provide adequate capacities is needed less frequently.

REDUCTION OF POLLUTION—Water used in homes and businesses eventually makes its way to wastewater treatment plants. When you cut down on your use of water, you automatically reduce the volume of wastewater reaching the treatment plant or your septic tank. This reduces the possibility of pollution from overloading these facilities.

SAVING OF ENERGY—Significant quanities of energy are used to heat water for residential and commercial use. Next to home heating, the greatest use of residential energy is heating water. Large amounts of energy are used to operate pumps to move water from place to place, to extract groundwater, to pressurize distribution systems and to pump and treat the resulting wastewater flows. Increased water-use efficiency can have significant impact on energy use.



WHAT ARE SOME WAYS TO SAVE WATER?

INSTALL WATER-SAVING DEVICES—The growing awareness and concern for water supply problems has prompted plumbing manufacturers to introduce new devices and redesign existing products for more efficient water use. These water-saving products help eliminate waste by allowing only the necessary amounts of water to be used at the plumbing fixture without seriously changing the user's comfort or satisfaction. Water conservation devices make it easy to conserve water because once installed they save water with little effort on the user's part.

CHECK YOUR PLUMBING. Start your water conservation habits at home with the following suggestions:

1. Repair all leaky faucets, and be certain they are turned off tight when not in use. Don't forget outside faucets as well.

2. Place laundry bluing or food coloring in the toilet tank reservoir after it is filled and watch for its appearance in the bowl to check for leaks. Do not flush while testing. Also, listen for the sound of running water.

3. When a hose is used and left connected to an outside faucet, don't depend on the hose nozzle to cut the water off—turn off the faucet instead.

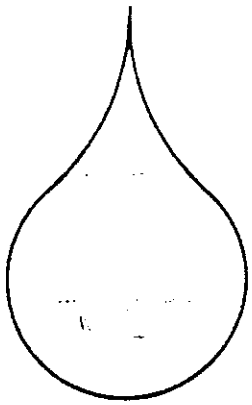
4. If an underground leak is suspected, call the utilities department and request they send a representative to check the situation.

5. Excessive water pressure can cause leaking pipes, dripping faucets, appliance breakdown, and "pushes" more water than is necessary out of outlets and fixtures. If you suspect high water pressure, have the pressure checked by the utilities department or a plumber. For household purposes, 50-60 pounds per square inch pressure is adequate. If your pressure is excessive, get a plumber to install a pressure-reducing valve.

MEET YOUR WATER METER. Your water meter can help keep track of the amount of water you use and is also helpful in detecting leaks. To be able to do this, learn how to read your water meter.

CHANGE TO GOOD WATER USE HABITS. Most water users are unaware of the amount of water they use in an average day of ordinary living. Of the average 100 gallons per person per day used in a community, about 80 gallons involve home use. Most of this home use is in the bathroom—33 gallons for flushing the toilet and 30 gallons for bathing.

#1



WATER CONSERVATION FACTSHEET NO.2

WHAT ARE SOME HELPFUL WATER SAVING TIPS FOR THE HOME?

BATHROOM

1. Showers—Limit showers to approximately four minutes. Take only seconds to wet your body—turn off the water, "soap up," then turn on the water for a good rinse. A four minute shower may use about 20 to 40 gallons. A longer shower could use 100 gallons or more.

2. Bathtub—Don't waste cold water—Stopper tub before turning on water. Initial cold water can be warmed by adding hot water later. Small kids can go in together. Consider recycling bath water (if not too dirty) for heavy cleaning jobs.

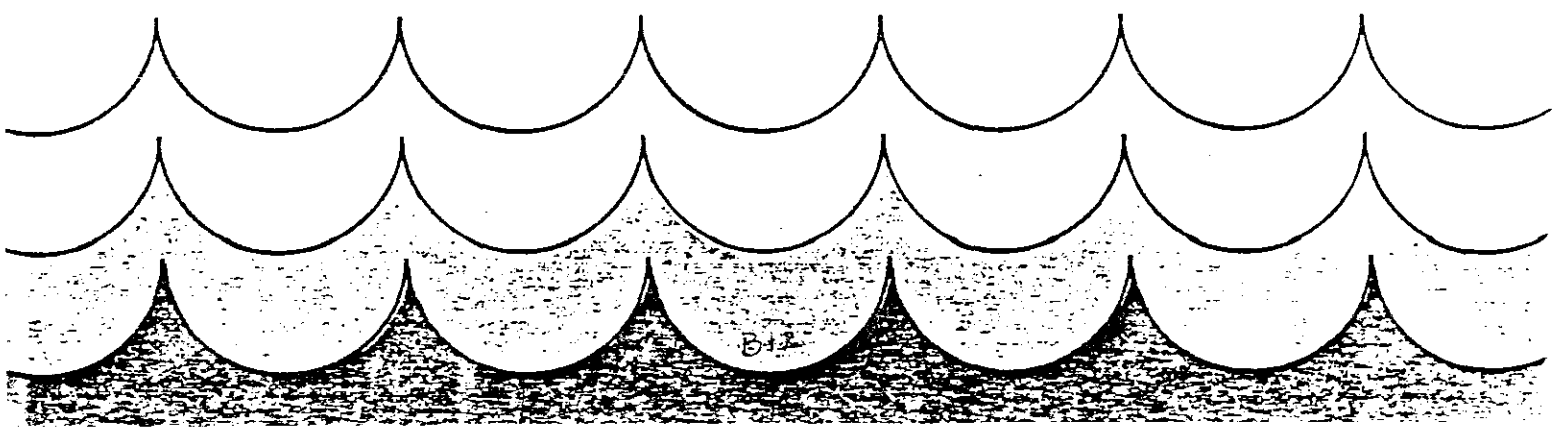
   Don't overfill tub—A full tub holds 50+ gallons. You can bathe adequately with one quarter as much. Clean tub while you are in it. Mark height of water with tape during bath. Next time, take shower with tub stoppered and compare water level.

3. Bathroom Sink—Shave and brush teeth the water-saving way—Clean razor and toothbrush with an occasional burst of water. For teeth, use cup to rinse. Try an electric razor—uses electricity but saves water, soap, laundry, and blades.

5. Toilet—Flush less often—Flush only feces, urine, and toilet paper. Use waste container for tissue, trash, hair, paper towels, paper diapers, etc. Be sure not to flush more often than necessary.

   Add bottles to tank—Use plastic bottles filled with water and weighted with pebbles to displace water in the tank. Be sure not to obstruct float. DO NOT USE BRICKS. They may flake and clog tubes and valves and, if dropped, could crack tank.

6. Hair Washing—Combine this chore with a shower or tub bath.



KITCHEN

1. Kitchen Sink—Clean vegetables and fruit efficiently—Use vegetable brush for fruits and vegetables. If you have a hand sprayer, use it sparingly with short bursts of water.

   Defrost without water—Plan ahead to thaw frozen foods and ice trays in the air when possible.

   Handwash efficiently—Scrape dishes with paper napkins from meal. Rinse all at once. Soak pots and pans overnight if very dirty. Cut down on cleanup by serving more single dish meals.

2. Dishwasher— Use it efficiently—Preclean dishes with paper napkins from meal. Soak pots and pans overnight if necessary. Wash only full loads. Experiment to discover the least possible detergent necessary. This will cut down suds residue.

3. Garbage Disposal—Use as little as possible—If you know a dog, cat, horse, hamster, pig, etc., your garbage can be their food. Start a compost pile. Use the garbage can.

4. Drinking Water—Promote water conservation at the table—Don't let the waiter bring water unless you request it. Discourage automatic refilling of empty water glasses. Use paper cups at drinking fountains whenever possible to avoid water waste.

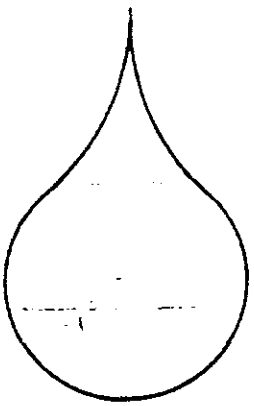
   Keep a bottle of drinking water in refrigerator—Don't run the tap waiting for cold water without collecting for other use. Make only the amount of coffee or tea you are going to drink. Use ice cubes to cool water. Recycle leftover drinking water.

5. Household Cleaning—Use less water—Recycled water is great for heavy cleaning followed by clean rinse. Use least possible soap or cleaning agent. To cut down on rinse water, presoak.

LAWN AND GARDEN

1. Lawn—Make every watering count—Water slowly, thoroughly, and as infrequently as possible. Water at night to minimize evaporation. Keep a close watch on wind shifts while using sprinklers. "Aerate" the lawn. Avoid watering during hot windy days. Early morning is the best time for sprinkling.

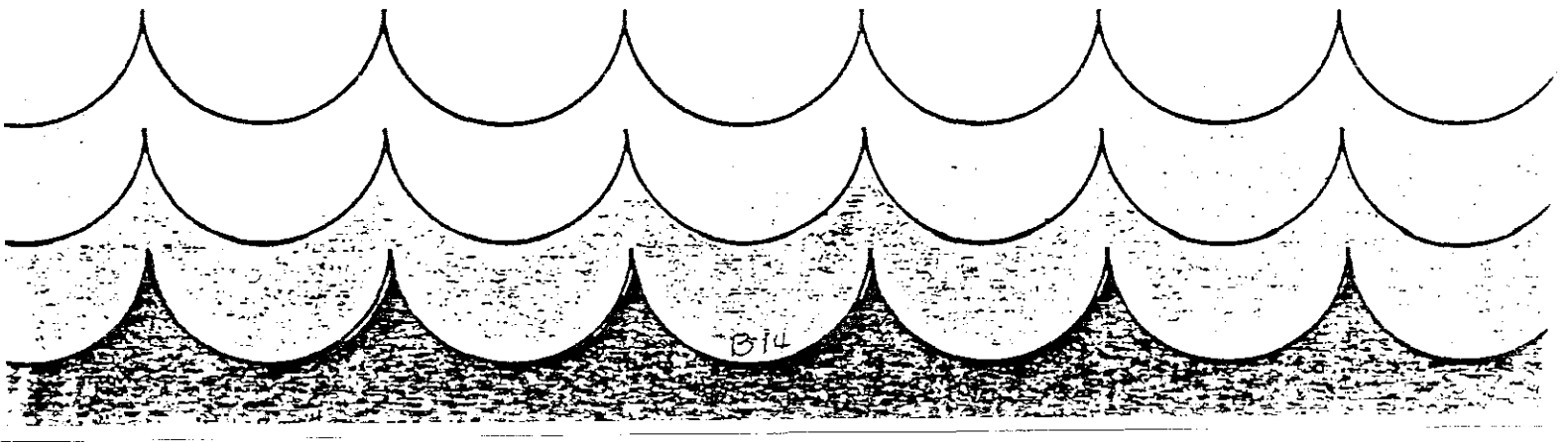
2. Practice water-saving horticulture—Select hardy species that don't need as much water. (Try native plants.) Mulch heavily. Let grass grow higher in dry weather—saves burning and saves water.



WATER CONSERVATION FACTSHEET NO.3

SAVINGS FROM CHANGES IN PERSONAL HABITS

	NORMAL USE	CONSERVATION USE
shower	water running 25 gal. (4 minutes)	wet down, soap up, rinse - 4 gal.
toothbrushing	tap running 10 gal.	wet brush, rinse briefly - 0.5 gal.
tub bath	full 36 gal.	minimum water level 10-12 gal.
shaving	tap running 20 gal.	fill basin 1 gal.
dishwashing	tap running 30 gal.	wash & rinse in sink or pan - 5 gal.
automatic dishwasher	full cycle 16 gal.	short cycle 7 gal.



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New England River Basins Commission. 1980. Before The Well Runs Dry: A Handbook For Designing A Local Water Conservation Plan. Water Conservation Programs Report, Boston, Massachusetts. pp. 95.

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U.S. Water Resources Council. 1980. Water Conservation Planning Guide (Draft). U.S. Water Resources Council, Washington, D.C.

Films:

Our Wealth of Waters. Available from the Tennessee Wildlife Resources Agency, Film Librarian, Ellington Agricultural Center, P.O. Box 40747, Nashville, Tennessee 37204. Film begins with a man dying of thirst, emphyzing the value of water and the problem resulting from its misuse. Junior High - Adult. 26 minutes.

Water Follies. Available from the Tennessee Department of Health and Environment, Health Services Film Librarian, 100 9th Avenue North, Nashville, Tennessee 37219. Film uses cartoon characters to humorously demonstrate uses and abuses of water supply with dishwashers, leaky faucets, lawn watering, showering, car washing, shaving, etc. Children. 7 minutes.

APPENDIX C

DuPage County Plumbing Code Amendment

AN ORDINANCE AMENDING THE DU PAGE COUNTY (ILLINOIS)
PLUMBING ORDINANCE ADOPTED SEPTEMBER 14, 1948
AND SUBSEQUENTLY AMENDED

WHEREAS, the regulatory powers under the Building Ordinance of 1948, as amended, provide for building construction and material standards, including the regulation of plumbing materials and installations, and to provide requirements for the disposal of sanitary sewage and,

WHEREAS, from time to time, the County Board of DuPage County, Illinois deems it expedient and in the best interest of the general public to amend the DuPage County Building Ordinance aforesaid;

NOW THEREFORE, BE IT ORDAINED by the County Board of DuPage County, Illinois, that Article 400, DuPage County Plumbing Ordinance, adopted September 14, 1948, and subsequently amended, be amended as follows:

410 G. WATER CONSERVATION

1. Water Use

2. New plumbing fixtures and any replacement plumbing fixtures shall comply with the following standards of water use.

   a. Water Closet-tank type
   residential only--Maximum 3.5 gallons (13.2 liters)/flush.

   b. Water closet-flushometer
   any location--Maximum 3.0 gallons (11.4 liters) per flush.

   c. Urinal-tank type--Illegal

   d. Urinal-floor mounted--Illegal

   e. Urinal-flushometer--Maximum 1.5 gallons (5.7 liters) per flush.

   f. Shower heads--Maximum flow 3.0 gallons (11.4 liters) per minute.
   In all shower rooms intended for public use, the shower heads are to be serviced by metering self-closing control valves whose cycle is not to exceed 60 seconds. Thermostatically controlled water at a temperature not to exceed 105oF (40oC) is to be provided each shower head.

   g. Lavatory Sink Faucets--Maximum flow 3.0 gallons (11.4 liters) per minute.
   The maximum flow rate for lavatory faucets is measured with both hot and cold water supply fully opened. When installed for public use, these shall be metering self-closing type.

   h. Water Softeners
   No residential water softeners may use more than 75 gallons (285 liters) during the entire regeneration cycle, and size to cycle no more than 3 times per week.

i. Special Fixtures
Special purpose plumbing fixtures and appurtenances where necessary, may be exempt from these requirements upon request and approval of the Director of the Building Department.

j. Industrial and Business Uses
Technical information on water usage of other than the above noted plumbing fixtures shall be indicated including demand, rate of demand, amount lost and amount re-circulated.

FURTHER, all Ordinances or parts of Ordinances in conflict with this Ordinance are hereby repealed to the extent of such conflict.

BE IT FURTHER ORDAINED that this Ordinance shall be in full force and effect after ten (10) days of its passage and due publication.

Dated at Wheaton, Illinois, this 19th day of July, A.D., 1977.

APPENDIX D
WATER SHORTAGE ORDINANCE

SECTION I: DECLARATION OF POLICY, PURPOSE, AND INTENT

SECTION II: DEFINITIONS

SECTION III: CLASSIFICATION SYSTEM

A. First Class Essential Water Uses
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SECTION IV: MANAGEMENT PHASES

A. Water Shortage Alert Provisions and Implementation
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    2. General Responses (Declaring a Conservation Phase)
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    3. Restrictions
D. Emergency Phase Provisions and Implementation
    1. Goal
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SECTION V: WATER MANAGEMENT ADVISORY GROUP

SECTION VI: SHORTAGE WATER RATES (Stand-by Rates)

SECTION VII: RATIONING

SECTION VIII: FINES AND PENALTIES (Failure to Comply)

SECTION IX: MONITORING AND ENFORCEMENT

SECTION X: VARIANCES (Relief from Compliance)

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SECTION XII: STATUS OF THE ORDINANCE (Adoption, Severability, and Effective Period)

WATER SHORTAGE ORDINANCE

SECTION I: DECLARATION OF POLICY, PURPOSE, AND INTENT

Purpose: To achieve the greatest public benefit from domestic water use, sanitation, and fire protection, and to provide water for other purposes in an equitable manner, (name of municipality) adopts the following regulations and restrictions on the delivery and consumption of water.

This Ordinance is hereby declared necessary for the preservation of public health, safety, and welfare and shall take effect upon its adoption by (name of municipality).

Whenever, in the judgment of the governing body of (name of municipality) comes necessary to conserve water in the service area, due to drought, (name of municipality) is authorized to issue a Declaration that existing conditions prevent fulfillment of the usual water-use demands. The Declaration is an attempt to prevent depleting the water supply to the extent that water-use for human consumption, sanitation, fire protection, and other essential needs become endangered.

Immediately upon the issuance of such a Declaration, regulations and restrictions set forth under this Ordinance shall become effective and remain in effect until the water shortage is terminated and the Declaration rescinded.

Water uses, regulated or prohibited under this Ordinance are considered to be non-essential and continuation of such uses during times of water shortage are deemed to constitute a waste of water, subjecting the offender(s) to penalties (SECTION VIII).

The provisions of this Ordinance shall apply to customers of (name of municipality).

SECTION II: DEFINITIONS

For the purposes of this Ordinance, the following definitions shall apply:

Conservation: reduction in water use to prevent depletion or waste of the resource.

Customer: any person, company, or organization using water supplied by the (name of municipality).

Domestic water use: water use for personal needs or for household purposes such as drinking, bathing, heating, cooking, sanitation, including employees' use in business, industry, or institution.

Management Phases:

Conservation: A conservation phase exists when (specify the triggering condition) and has been verified by best available information.

Restrictions: A restrictions phase exists (specify the triggering condition) and has been verified by best available information.

Emergency: An emergency phase exists when (specify the triggering condition) and has been verified by best available information.

Even numbered address: street addresses, box numbers or rural route numbers ending in 0, 2, 4, 6, 8, or letters A-M; and locations without addresses.

Institutional water use: water used by government, public and private educational institutions, public medians and rights of way, churches and places of worship, water utilities, and other lands, buildings, and organizations.

Landscape water use: water used to maintain gardens, trees, lawns, shrubs, flowers, athletic fields, rights of way and medians.

Odd numbered address: street addresses, box numbers or rural route numbers ending in 1, 3, 5, 7, 9, or letters N-Z.

Water Management Advisory Group: a committee composed of local representatives, created for the purpose of coordinating responses to water shortages.

Water shortage: lack of adequate available water to meet normal demands due to lower than normal precipitation, reduced stream flows or soil moisture, water levels in wells which cause water supplies to be less than usual, major water line breaks, chemical spills, etc. resulting in reduced water supplies.

SECTION III: WATER USE CLASSIFICATION SYSTEM

First Class Essential Water Uses

("First Class Essential Water Uses" should correspond to the classification system established in the system's drought and emergency management plan.)

Second Class Essential Water Uses

("Second Class Essential Water Uses" should correspond to the classification system established in the system's drought and emergency management plan.)

Third Class Essential Water Uses

("Third Class Essential Water Uses" should correspond to the classification system established in the system's drought or emergency management plan.)

Non-Essential Water Uses

("Non-Essential Water Uses" should correspond to the classification system established in the system's drought and emergency management plan.)

SECTION IV: MANAGEMENT PHASES

Three levels of water management are established: "Conservation," "Restrictions," and "Emergency." Declarations issued by (name of municipality) shall specify the water management phase in effect and undertake the appropriate water management activities.

A. Drought Alert Provisions and Implementation

When a local, regional or statewide "Drought Alert" is issued by the Tennessee Office of Water Management, (name of municipality) will begin, if not already underway, regular monitoring of supply and demand conditions applicable to (name of municipality). Users of the system will be alerted to the activation possibility of the water shortage management plan. Notice will be made to a newspaper of general circulation within the affected community or area. In addition, (name of municipality) will encourage water users to assess their use of water.

B. Conservation Phase Provisions

If conditions indicate that a moderate water shortage condition is present and is expected to persist, (name of municipality) shall activate those requirements outlined in this section to reduce water use.

1. Goal:

(a) An overall water use reduction of fifteen (15) percent. Voluntary water use reductions would be requested for essential, economic, and social uses.

(b) Non-essential water uses would be banned.

2. General Response:

Issue a Declaration of Water Shortage in a newspaper of general circulation within the affected community and region. This statement shall specify that conservation phase measures are necessary and shall include the list of non-essential water uses.

3. Restrictions Applying to Non-Essential Uses:

(Specify the restrictions that apply to Non-Essential Uses.)

C. Restrictions Phase Provisions

If conditions indicate that a severe water shortage condition is present and is expected to persist (name of municipality) shall activate those requirements outlined in this section to curtail water uses.

1. Goal:

An overall water use reduction of thirty (30) percent. Voluntary water use reductions would be requested for essential uses. Non-essential water uses would be banned, resulting in a 100 percent overall class reduction. Curtailments in Second and Third Class Essential Water uses would be required resulting in a seventeen (17) percent combined class reduction.

2. General Responses:

(a) Issue a Declaration of Water Shortage in a newspaper of general circulation within the affected community and region. This statement shall specify that a Restrictions Phase is in effect and shall include the list of banned uses, and the list of restricted water uses.

(b) Require customers of (name of municipality) to comply with the listed water-use bans and restrictions in all categories while severe drought conditions exist.

3. Restrictions Applying to Second and Third Class Essential Water Uses:

(Specify the bans and restrictions that apply to Non-Essential, Second and Third Class Essential Water Uses.)

D. Emergency Phase Provisions

If conditions indicate that an extreme water shortage condition is present (name of municipality) shall activate the provisions outlined in this section to curtail water use.

Water-use restrictions imposed during extreme water shortage conditions are mandatory.

1. Goal:

(a) An overall water use reduction of sixty (60) percent; only First Class Essential water uses would be allowed.

(b) All other water uses would be prohibited.

2. General Responses:

(a) Issue a Declaration of Water Shortage in a newspaper of general circulation within the affected community and region. This statement shall specify that an Emergency Phase is in effect. It shall include the list of banned water uses.

(b) Require customers of (name of municipality) to comply with the listed water-use restrictions in all categories while extreme water shortage conditions exist.

3. Restrictions Applying To Second and Third Class Essential Water Uses:

(Specify the restrictions that apply to Non-Essential, Second and Third Class Essential water uses.)

SECTION V: WATER MANAGEMENT ADVISORY GROUP

The Water Management Advisory Group shall consist of five (5) members, representing various local interest groups. The representatives shall be appointed by administrative body and serve a term of five years. Terms should be staggered, beginning on October 1 of each year. Regular, annual meetings should be held to review the plan, meeting more frequently as necessary upon the onset of each drought.

The Water Management Advisory Group shall evaluate water supply conditions to determine if conditions satisfy water shortage management triggering points as identified in the local drought management plan. The Advisory Group shall consider:

1. the effectiveness of the local water shortage ordinance and plan in protecting and insuring adequate water supplies,
2. water supply conditions (existing and forecasted), and
3. other relevant information.

The Water Management Advisory Group shall consult with and invite participation by the general public affected, as well as with interest group representatives.

SECTION VI: SHORTAGE WATER RATES (STAND-BY RATES)

Upon the declaration of a water shortage, (name of municipality) shall utilize shortage water rates to water conservation of water supplies. (Such rates may provide for, but not be limited to: (a) higher charges per unit for increasing usage (increasing block rates); (b) uniform charges for water usage per unit of use (uniform unit rate); (c) extra charges for use in excess of a specified level (excess demand surcharge); or (d) discounts for conserving water beyond specified levels. This ordinance includes an example of an "excess use or surcharge" structure.)

In the event of a water shortage and activation of the "restrictions" phase, the (name of municipality) is hereby authorized to monitor water use and limit households to 70 gallons per household member per day. Domestic water use above this limit will be subject to a surcharge of $25.00 per 1000 gallons. The (name of municipality) is hereby authorized to monitor water use and limit households to 40 gallons per household member per day under an "emergency" phase. Domestic water use above this limit will be subject to a surcharge of $50.00 per 1000 gallons. Institutional, commercial, industrial, and recreational water

users will be subject to water use surcharges of $100.00 per 1,000 gallons of water used if the (name of municipality) deems that adequate conservation measures have not been implemented.

SECTION VII: RATIONING

(Water Supply Systems relying on rationing to reduce water use will need to include a section in their ordinance dealing with rationing.)

In the event of a declared drought (name of municipality) issues a Declaration of Water Shortage specifying either a Restrictions phase or Emergency phase (name of municipality) is hereby authorized to ration water in accordance with the following conditions:

Residential Water Customers and Allotments

(1) The number of permanent residents in each dwelling unit (household) will determine the amount of water that each household will be allowed.

(2) Each dwelling unit (household) shall be allotted 70 gallons per day for each resident of the household under "restrictions" and 40 gallons per day for each resident of the household under "emergency" conditions. Households with only one permanent resident will have a daily allotment of 55 gallons per day under "emergency" conditions.

(3) Residential water customers are required to provide city utility personnel with reasonable access to read meters as necessary to this rationing declaration. Where access is not readily available, all reasonable efforts to contact customers in order to arrange for access to read meters shall be made. In the event a water customer does not allow entry to read the meter after reasonable efforts to arrange for such access, the dwelling unit (household) allotment will be reduced to 55 gallons per day.

(4) (i) Where the residential water allotment provided under this section would create an "extraordinary hardship," as in the case of special health-related requirements, the water customer may apply to the water system for an exemption or variance from these requirements. If it is found that the allotment provided in this section would impose an extraordinary hardship, a revised allotment for the particular customer may be established.

(ii) Any person aggrieved by a decision relating to such an exemption or variance rendered by the municipality rendering water service, may file a complaint with the (name the appropriate body). (The procedures for such a complaint may be described here).

Non-Residential Water Customers and Allotments

Non-residential customers include commercial, industrial, institutional, public and all other such users, with the exception of hospitals and health care facilities.

Non-residential water customers shall further reduce their water usage to fifty (50) percent of use levels of (specify month and year) .

It is the primary responsibility of each non-residential water customer to meet its mandated water use reduction goal in whatever manner possible.

The (name of municipality) will establish a water allotment for each non-residential water customer, based upon a required further reduction of water usage from the rate of water used by the customer in effect on (date), or the last recorded use level if no meter readings record the rate of the customer's use on (date).

Each non-residential water user shall provide access to water system personnel for purposes of meter reading and monitoring of compliance with this ordinance. All reasonable efforts will be made to contact customers to arrange for access.

If the mandated further reduction in water usage cannot be obtained without imposing extraordinary hardship which threatens health and safety, the non- residential customer may apply to the water system for a variance. For these purposes "extraordinary hardship" means a permanent damage to property or economic loss which is substantially more severe than the sacrifices borne by other water users subject to this water rationing ordinance. If the further reduction would cause an extraordinary hardship or threaten health or safety, a variance may be granted and a revised water use reduction requirement for the particular customer may be established.

(The municipality may need to specify in its ordinance that any person aggrieved by a decision relating to such a variance rendered by a public utility may need to file a complaint with the appropriate body. The procedures for such a complaint may be described here.)

Water Use Rationing for Hospitals and Health Care Facilities

Hospitals and health care facilities shall comply with all restrictions imposed on residential and non-residential water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

Each hospital or health care facility shall survey its water usage patterns and requirements and implement such additional conservation measures as may be possible without endangering the health of its patients or residents to achieve a further reduction in the institution's water usage.

SECTION VIII: FINES AND PENALTIES (FAILURE TO COMPLY)

Except as otherwise stated herein, violators of any provision of this Ordinance shall be penalized. The penalty for a person's first offense shall be $100. The penalty for a person's second offense shall be $200. Persons violating this ordinance a third or more times within the same drought period will have water service disconnected for a period of five (5) days with a $300 reconnection fee.

The aforementioned fines and penalties may be in lieu of, or in addition to, any other penalty provided by law.

Services disconnected under such circumstances shall be restored only upon payment of a reconnection charge.

SECTION IX: MONITORING AND ENFORCEMENT

Law officers of the (name of municipality) police force shall, in addition to duties imposed by law, diligently enforce the provisions of this Ordinance.

Employees of (name of municipality), Department of Public Works, and fire department have the duty, and are hereby authorized to enforce the provisions of this Ordinance and shall have the power and authority to issue citations when violations of this Ordinance occur during any declared drought.

SECTION X: VARIANCES (RELIEF FROM COMPLIANCE)

Customers not capable of reducing water use immediately, because of equipment damage or other extreme circumstances, shall reduce water use within twenty-four hours of a declaration of a water shortage, where provisions of this ordinance apply to them and shall apply for a variance from curtailment.

Customers requesting exemption from the provisions of this Ordinance shall file a petition for variance with (name of body) within three (3) days after such curtailment becomes effective.

When the Ordinance has been invoked by the (name of position), all petitions for variances shall be reviewed by the (name of body). When the Ordinance has been invoked by the (name of position), persons using less than 25,000 gallons of water per day shall file a petition for variance with the (name of body), and persons using in excess of 25,000 gallons of water per day shall file a petition for variance with the (name of appropriate body) within three (3) days of the effective date of water use curtailment or reduction. The (name of appropriate body) shall respond to requests for variance within five days of receipt of information or within twenty days of declarations of the curtailment, whichever comes first. Petitions shall contain the following:

i.e. Board of ... or Department of Water, etc.

A. Name and address of the petitioner(s).
B. Purpose of water use.

C. Specific provision from which the petitioner is requesting relief.
D. Detailed statement as to how the declaration adversely affects the petitioner.
E. Description of the relief desired.
F. Period of time for which the variance is sought.
G. Economic value of the water use.
H. Damage or harm to the petitioner or others if petitioner complies with Ordinance.
I. Restrictions with which the petitioner is expected to comply and the compliance date.
J. Steps the petitioner is taking to meet the restrictions from which variance is sought and the expected date of compliance.
K. Other pertinent information.

In order for a variance to be granted, petitioner must show one or more of the following conditions:

A. Compliance with the Ordinance cannot be technically accomplished during the duration of the water shortage.
B. Alternative methods can be implemented which will achieve the same level ofreduction in water use.
C. An extraordinary hardship can be shown.

The (name of municipality) may, in writing, grant temporary variances for existing water uses otherwise prohibited under the Ordinance if it is a condition adversely affecting health, sanitation, or fire protection for the public or the petitioner and if one or more of the aforementioned conditions is met. The governing body of (name of municipality) shall ratify or revoke any such variance at their next scheduled meeting. Any such variance so ratified may be revoked by later action of the governing body of (name of municipality).

No variance shall be retroactive or otherwise justify any violation of this Ordinance occurring prior to the issuance of the variance.

Variances granted by (name of appropriate body) shall be subject to the following conditions, unless waived or modified by (name of appropriate body).

A. Variances granted shall include a timetable for compliance.
B. Variances granted shall expire when the water shortage no longer exists.

SECTION XI: ACTIVATION AND DEACTIVATION OF MANAGEMENT PHASES

Declaration of a Drought. Whenever the (name of municipality) finds that a potential shortage of water supply is indicated, it shall be empowered to declare a drought exists, and that the water superintendent shall, (specify daily or other basis), monitor the supply and demands upon that supply. In addition, the mayor (or his/her agent) is authorized to specify the management phase in effect and the measures to be employed by the system's customers. This Declaration shall be published in an official city newspaper, and may be publicized through the general news media or any other appropriate method for making such resolutions public.

Termination of Drought Phases. Whenever (name of municipality) finds that water supplies have returned to normal, it shall be empowered to replace or declare as ended by resolution any phase enacted. Such a declaration shall follow the same guidelines used for declaring a drought.

SECTION XII: STATUS OF THE ORDINANCE (ADOPTION, SEVERABILITY AND EFFECTIVE PERIOD)

Severability. If any provision of this ordinance is declared unconstitutional, or the application thereof to any person or circumstance is held invalid, the constitutionality or validity of the remainder of the ordinance and its applicability to other persons and circumstances shall not be affected thereby.

Effective Date. This ordinance shall take effect immediately upon adoption by (name of municipality).

Effective Period. This ordinance will remain in effect until terminated by action of (name of municipality).

Passed by the City (council or commission) this _____ day of _____, 19 _____.

_____
(Mayor's Signature)

ATTEST:

_____
(City Clerk's Signature)

APPENDIX E

SAMPLE PRESS RELEASE AND DECLARATIONS

SAMPLE
DECLARATION
FOR
ACTIVATING
DROUGHT
MANAGEMENT

WHEREAS, the (city/town/utility district/etc.) has not received any appreciable precipitation during the past _____ consecutive days; and

WHEREAS, the (city/town/etc.) is now experiencing (severe/extreme) drought conditions; and

WHEREAS, there is every indication that the present drought situation will not abate in the near future; and

WHEREAS, these conditions may in fact become even more (severe/extreme); and

WHEREAS, extraordinary cooperation and support are necessary to insure public safety, protect the general welfare and mitigate the impact of the drough situation.

NOW, THEREFORE, (I/we), _____ do hereby proclaim a state of drought to exist. Further, I/we fully support the water conservation measures (recommended/imposed) by the _____ and encourage local acceptance and compliance. Further, I/we have authorized the use of all agencies, personnel and facilities within my/our authority to address the needs of those affected by the drought and to mitigate its effect.

Note: Signing a proclamation, such as that above, or other such endorsement by the mayor or county commissioners lends official local support to the Drought Management Plan.

SAMPLE

PRESS RELEASE

Mayor _____ today called upon (city, county, etc.) residents to conserve water as drought conditions continue.

"It is time for residents to avoid unnecessary use of water--sprinkling lawns, washing cars and other optional uses that are not essential," Mayor _____ said. "There is not yet a water emergency, but without substantial improvement in supplies soon we are not far away from it."

"Intelligent, careful use of our water resources will help the system to maintain sufficient supplies to meet essential needs."

SAMPLE

PRESS RELEASE

CONTACT: _____
Name

TELEPHONE: _____

(Community Name), Tennessee--Due to the recent abnormally dry weather conditions and little indication of significant rainfall in the foreseeable future, (residents or customers) of _____ (community or system's name) should begin conserving water, according to _____ (appropriate local or water official). For the month(s) of _____, (community or area name) received only _____ percent of normal rainfall for the comparable period. The 30-day outlook from the National Weather Service calls for more abnormally dry weather (modify to reflect actual outlook).

At this time, there is an immediate need to begin conservation phase measures by those served by the _____ water system. (List measures having greatest benefit to the community.) All non-essential uses of water are banned. Non-essential uses include water-sprinkling lawns, non-commercial washing of cars, filling and/or making-up water in private swimming pools serving less than 25 dwelling units and make-up water to foundations and reflecting pools. (Residents or customers) are urged to cooperate.

SAMPLE

PRESS RELEASE

Mayor (City Manager, etc.) _____ today called on residents to conserve water as drought conditions continue.

"It is time for residents to avoid unnecessary use of water-sprinkling lawns, washing cars and other optional uses that are not essential," Mayor ___ _____ said. A Water Restrictions phase is not yet necessary but without substantial improvement in supplies soon we are not far away from it."

"Intelligent, careful use of our water resources will help the system to maintain sufficient supplies to meet essential needs."

SAMPLE

PRESS RELEASE

The (Mayor or City Manager) of _____ on _____ (date) declared a need for water use (name phase) for the (city/town/utility district/etc.) of _____. The drought situation has continued to deteriorate. The (city/town/utility district/etc.) of _____ is now experiencing (severe/extreme) drought conditions, and the drought situation could become critical if restrictions phase measures are not implemented:

(List water-use measures for appropriate drought phase.)

The following enforcement procedures will be utilized should they become necessary:

(List options available.)

SAMPLE

PRESS RELEASE

CONTACT: _____
Name

TELEPHONE: _____

_____, Tennessee--Due to recent improvements in water supplies, _____ (appropriate local official) informed customers of _____ (community or system) that they can discontinue water (name of phase) today. _____ phase measures will remain in effect in order to prevent a recurrence of extreme shortage conditions and until water supplies return to normal.

_____ (official) thanked residents for their cooperation in conserving water over the past _____ weeks.

SAMPLE

PRESS RELEASE

_____ (name of town) is currently experiencing abnormally dry conditions, and relief to supplies during the next few (weeks/days) does not look favorable. Although the situation has not yet reached critical stage, the following water use (conservation) measures are (encouraged; must be taken).

(List water use measures for appropriate drought phase.)

Precautionary measures taken now may mean less drastic steps will be needed in the future should drought conditions continue unabated.

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